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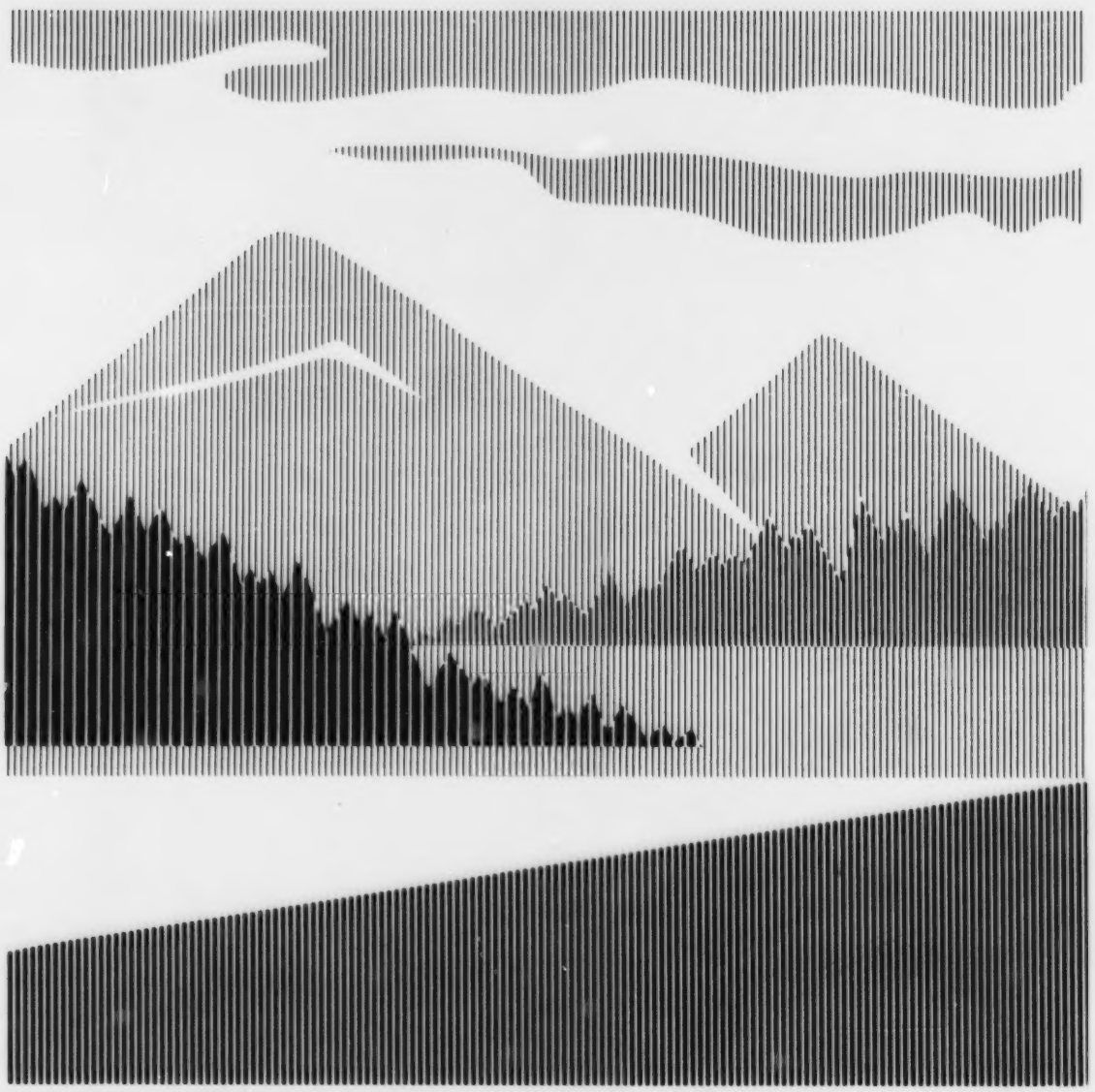
# The Size, Structure and Socio-Economic Impact of the Logging Industry in Newfoundland, 1985

by D.L. Hayden

DECEMBER 1988



Forest Resource Development Agreement
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# THE SIZE, STRUCTURE AND SOCIO-ECONOMIC IMPACT OF THE LOGGING INDUSTRY IN NEWFOUNDLAND, 1985

by D.L. Hayden

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## ABSTRACT

Data from a survey of domestic and commercial wood loggers in Newfoundland, carried out in 1986, are analyzed and major results discussed. Aspects of production, equipment, capital input, employment and income, wood supply and industry concerns are presented.



## RESUME

Cette etude presente l'analyse et la discussion des principaux resultats d'une enquete menee a Terre-Neuve en 1986 aupres de bucherons oeuvrant tant a l'echelle familiale que commerciale. Les aspects de la production, de l'equipement, du capital, de l'emploi et du revenu ainsi que les questions liees a l'approvisionnement en bois et a l'industrie du bois ont ete eclaircis.

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# THE SIZE, STRUCTURE AND SOCIO-ECONOMIC IMPACT OF THE LOGGING INDUSTRY IN NEWFOUNDLAND, 1985

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## INTRODUCTION

The forest industry plays an important social and economic role in Canada. As such, the contributions and impacts of the forest industry should be well identified and quantified. At the regional level, however, data concerning the forest industry are often lacking. This is particularly the case in Newfoundland where the relative national importance of the forest industry is overshadowed by that of other provinces.

Despite the relatively small contribution of Newfoundland's forest sector on a national scale, the forest sector is of major importance within the province. In 1984 the forestry processing sector accounted for about 25 percent of all manufacturing employment and income in Newfoundland. Moreover, forestry processing generated almost 30 percent of the total manufacturing value of shipments and contributed 37 percent of the value added. The direct employment attributed to forestry in 1985 was about 6 400 person years with total incomes of approximately $140 million. The forest sector also generated about 6 400 person years of indirect employment with an estimated income of $91 million.

In recent years the impact of the forest industry on the provincial economy has been identified and quantified for some sectors (sawmill sector, Milne 1981 and 1982; newsprint sector, Hayden 1985).

But despite the importance of forestry to the provincial economy, other sectors such as logging, have largely been ignored.

The absence of reliable data relevant to the logging industry poses serious problems. This deficiency hinders characterization of the economic and social impacts of the industry. Also, the true industry structure with associated problems and growth potential cannot be accurately identified. More importantly, this lack of information hinders effective policy development and program planning directed toward the logging industry.

This report attempts to address this information gap by presenting information obtained through a survey of domestic and commercial wood loggers which took place in May and June of 1986. The purpose of this report is to:

i) improve the general knowledge and understanding of Newfoundland's logging industry;

ii) establish a data base with appropriately defined variables for use in economics related research; and

iii) provide government agencies with information for program planning and policy development.

The report is divided into four sections. The first provides a profile of the forest industry and the importance of the logging sector within it. The second outlines the survey design and methodology, and the third provides an analysis and discussion of results obtained from the survey. The fourth section provides a summary of the data obtained and some relevant conclusions.

## INDUSTRY PROFILE

The Newfoundland logging industry consists of the woods operations of two newsprint companies, Corner Brook Pulp and Paper Limited and Abitibi-Price Inc., smaller independent pulpwood producers, and the logging operations of the commercial sawmill industry. Logging associated with a non-commercial sawmill sector is also carried out, primarily to supply logs for use in push-bench sawmills. Further logging is carried out to produce fuelwood, and roundwood for domestic and fisheries use (Grey 1981).

Commercial logging in Newfoundland has undergone many changes and technological improvements over the last 100 years (Page et al., 1972) and woods workers have progressed from unskilled or semi-skilled part-time fishermen-loggers to highly skilled full-time loggers.

### Historical Background

Early logging operations were associated mainly with the sawmill industry. At the beginning of the twentieth century the Government of the day made major efforts to promote industrial development in the interior of the island. This event coincided with the construction of the railway which gave access to the interior white pine forests of the region for sawtimber, most of which was exported to England. Logging was carried out on a selective basis with only those trees suitable for sawlogs being removed from the forest.

These early operations were very labour intensive. Tree felling was carried out using axes and crosscut saws. Logs were removed from the forest to a river bank or lake shore in the winter by ox-drawn sleds. The final transportation to the sawmill took place in spring by river drive. Wood hauling was soon carried out using horses instead of oxen.

By 1911 sawmilling was in a decline. The stands of white pine were not as extensive as originally thought, were mainly overmature, and contained high proportions of defect. The decline in sawmilling coincided with the beginning of the pulp and paper industry.

Pulpwood logging operations initially followed the sawmill industry's selective cut method, extracting only the largest trees. For economic reasons, however, clear cutting was adopted within a few years. At about this time the lighter one-man bucksaw was introduced which allowed for more versatility in wood processing and led to the practice of bucking trees into four foot lengths. The "short-wood" logging system remained the dominant harvesting method until a trend toward mechanization developed.

In about the mid 1950's all phases of transportation were combined into one operation and wood was trucked directly from the stump to the mill yard. This practice was superseded in the early 1960's by wheeled-skidder logging. The skidder took the industry back to tree length harvesting.

The skidder made possible still greater mechanization and was soon followed by such equipment as delimbing and debarking machines, mobile slashers and various lifting and loading devices. More recently, hydraulically operated wood processors and harvesters, and full tree processing at site have characterized the industry.

## Current Industry Structure

The pulpwood logging sector dominates the logging industry and consists of the woods operations of the two newsprint companies - Corner Brook Pulp and Paper and Abitibi-Price Inc. - and the contractors who work for them. Independent producers also supply the three newsprint

mills, cutting on Crown, private and company freehold or lease-license lands. The pulpwood cut utilized for the production of newsprint within the province accounts for approximately 70 percent of the timber cut in the province annually (Table 1).

The sawlog sector accounts for a less substantial portion of the annual provincial harvest. Lumber production has varied with consumption and import trends. Newfoundland lumber production supplies less than half of the provincial lumber market, and increases in production generally coincide with decreases in lumber imports from mainland Canada.

Of interest is the fuelwood component of roundwood production. A decline was seen in volumes of fuelwood cut from 1960 to 1977, but since then, coincident with rising heating fuel costs, fuelwood cutting has increased dramatically. In 1983 approximately 800 000 $m^3$ of wood was consumed for fuel, 600 000 $m^3$ of which was softwood (Northland Associates Ltd. 1984). About 75 percent of the fuelwood is harvested by domestic cutters and 25 percent by commercial operators. Fuelwood harvesting currently accounts for about 25 percent of Newfoundland's annual softwood harvest, making it second only to pulpwood.

Determining the actual total commercial and domestic timber production for Newfoundland is difficult. The provincial Department of Forest Resources and Lands does not keep records of annual cut by domestic producers. They do, however, compile relevant statistics from a number of independent sources. These figures are presented in Table 1.

## SURVEY DESIGN AND METHODOLOGY

Since information concerning the logging sector is generally lacking in the province, survey design and implementation required considerable planning. The population of loggers had to be estimated, and

Table 1. Commercial and domestic timber production, Newfoundland 1985

| Commercial: | '000 $m^3$ | Domestic: | '000 $m^3$ |
|---|---|---|---|
| pulpwood | 1 727.9 | fuelwood | 512.7 |
| export pulpwood | 32.4 | chips | 1.3 |
| chips | 44.5 | sawmill | 11.3 |
| construction | 7.7 | sub-total | 525.3 |
| dunnage | 2.8 | | |
| sawlogs | 173.3 | | |
| | 1 988.6 | | |

the survey designed to reflect conditions experienced in various regions of the province. Simplicity in design was critical to ensure the questionnaire would be answered, and a tradeoff had to be established between the level of detail desired in responses and a level which might be perceived as overly inquisitive by those responding to the questionnaire.

### Survey Population

In order to obtain an estimate of the size of the logging sector, a list of all commercial and domestic permits issued for 1985 was obtained from the Newfoundland Department of Forest Resources and Lands.[1] In 1985 there were 1 663 commercial and 33 500 domestic cutting permits issued for the island of Newfoundland. There were 807 domestic and 37 commercial cutting permits issued in Labrador, representing 2.4

[1] A commercial permit is issued for 1 999 $m^3$ at a cost of $10; and a domestic permit is issued for 28.88 $m^3$ at a cost of $5. A commercial permit issued for volumes exceeding 1 999 $m^3$ requires ministerial approval and costs $20.

percent of all domestic and 2.2 percent of all commercial permits issued. Due to the small percentage of cutting permits issued in Labrador, coupled with financial limitations and logistical constraints associated with surveying in Labrador, a decision was made to focus the study exclusively on the island of Newfoundland.

In order to obtain names and addresses of permit holders, scaling returns filed by permit holders were used since records of permits issued did not necessarily contain this information. In some instances, scaling returns were not remitted to the Department of Forest Resources and Lands, and the survey sample population had to be reduced accordingly.

The sample of scaling returns obtained from the Department of Forest Resources and Lands only reflects those individuals or firms cutting on Crown lands. Because a substantial amount of logging activity also takes place on company held land, both Corner Brook Pulp and Paper Ltd. and Abitibi-Price Inc., were solicited for lists of individuals or firms operating on their land holdings. In this manner loggers operating on Crown, lease/license, and private lands held by the two companies were included in the survey population. All names obtained from the companies were assumed to be commercial operators. The total population size derived from these two sources was 1 141 commercial, and 33 500 domestic loggers.

**Questionnaire Design**

A preliminary questionnaire was developed early in 1986 with input from the Department of Forest Resources and Lands, the Canadian Forestry Service, Corner Brook Pulp and Paper Ltd., Abitibi-Price Inc., and the Newfoundland Lumber Producers Association.

Considerable care had to be taken in designing questions since some of the desired information would likely be considered confidential by many of the respondents. While obtaining accurate, meaningful information was the main goal of administering the questionnaire, some questions were ultimately dropped and others made less precise to avoid offending any respondents.

After the content of the questionnaire was determined, assistance was sought from Statistics Canada personnel in St. John's concerning the ordering and phrasing of questions, general format, and timing and means of implementation.

In order to test the questionnaire and to identify any problems which might occur during implementation, several in-person surveys were conducted in the vicinity of St. John's. The results of these initial surveys confirmed the feasibility of the larger scale survey.

**Sampling Methodology**

In order to obtain a representative cross-sectional overview of the logging industry, a stratified random sample was chosen as the most appropriate sampling technique. The Island was divided into four strata, Avalon, Eastern, Central, and Western so that regional differences could be highlighted when the results were analyzed. The total population of commercial and domestic loggers was allocated to these four strata, based upon the management unit in which they occurred (Figure 1). A sample size, based on proportional weighting, was established for each stratum (Table 2).

In order to obtain primary data, both in-person and mail-out/mail-back questionnaire techniques were utilized. A total of 24 commercial and 36 domestic loggers from across the island were randomly

Figure 1. Survey Population by Strata.

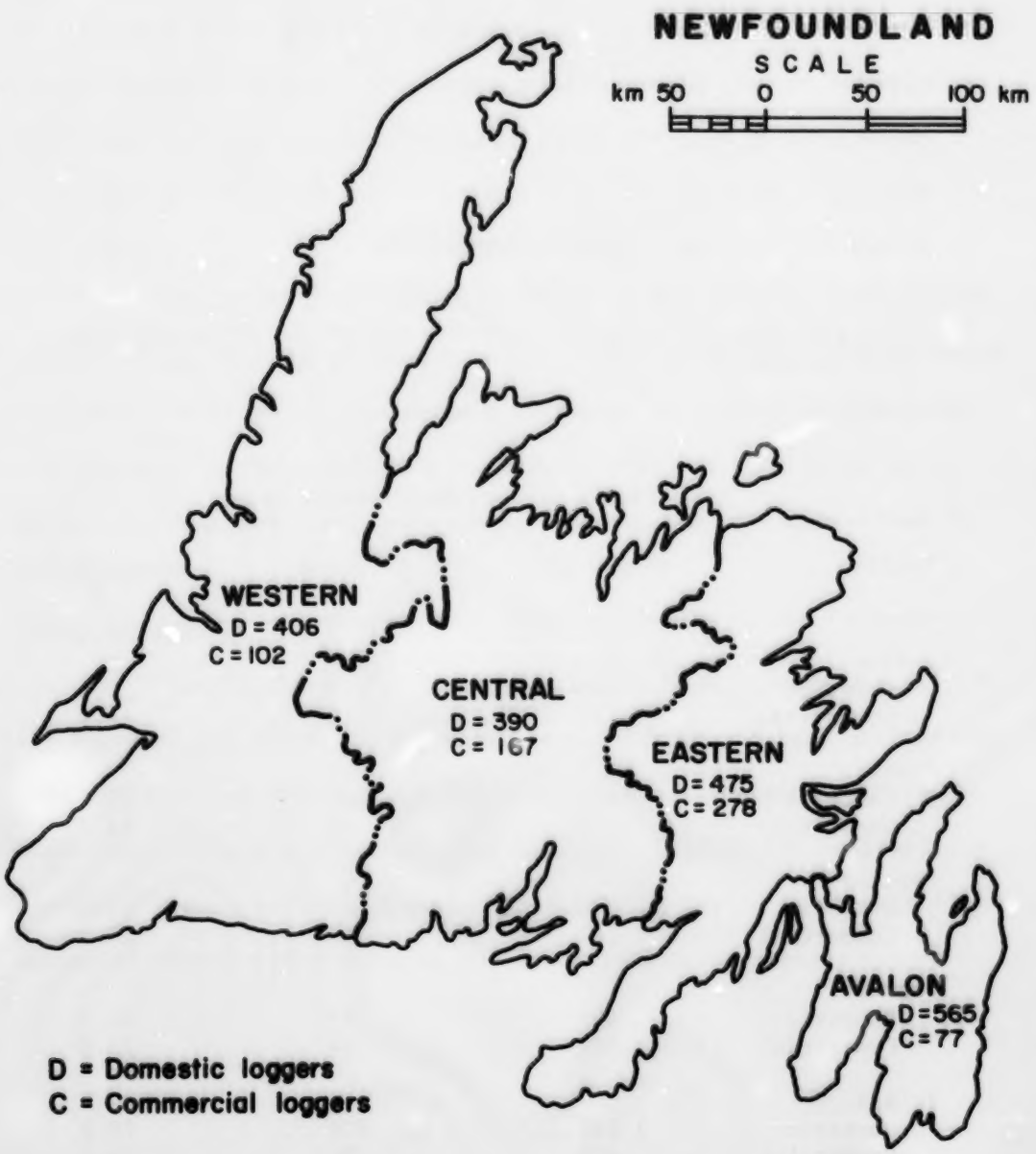

Table 2. Distribution of loggers and sample size

| Region | Management Units | Number of Loggers | | Sample Size | |
|---|---|---|---|---|---|
| | | Domestic | Commercial* | Domestic | Commercial |
| Avalon | 1 | 10 309 | 141 | 565 | 77 |
| Eastern | 2 - 5 | 8 667 | 507 | 475 | 278 |
| Central | 6 - 12 | 7 116 | 306 | 390 | 167 |
| Western | 13 - 18 | 7 408 | 187 | 406 | 102 |
| Island | 1 - 18 | 33 500 | 1 141 | 1 836 | 624 |

* Does not include commercial permits issued for Christmas tree production.

Table 3. Survey response rate

| Region | Sample Size | Responses | Response Rate % |
|---|---|---|---|
| Avalon | | | |
| Domestic | 565 | 129 | 22.8 |
| Commercial | 77 | 13 | 16.9 |
| Eastern | | | |
| Domestic | 475 | 108 | 22.7 |
| Commercial | 278 | 41 | 14.7 |
| Central | | | |
| Domestic | 390 | 95 | 24.4 |
| Commercial | 167 | 18 | 10.8 |
| Western | | | |
| Domestic | 406 | 87 | 21.4 |
| Commercial | 102 | 24 | 23.5 |
| Island | | | |
| Domestic | 1 836 | 419 | 22.8 |
| Commercial | 624 | 96 | 15.4 |

chosen to participate in the in-person portion of the survey. An additional 600 commercial and 1 800 domestic loggers were randomly chosen in the four strata. These individuals or firms were asked to participate in the study by completing a mail-out mail-in survey, identical to the in-person questionnaire. The survey response rate for the Island as a whole was 15.4 percent for commercial firms and 22.8 percent for domestic loggers (Table 3).

## ANALYSIS OF RESULTS

The survey results were analyzed on the basis of domestic and commercial loggers and presented in a regional breakdown. All responses were based on 1985 data and pertain to those individuals or companies who responded to the questionnaire only. Questions were often asked in varied units of measurement, but all responses have been converted to metric units.

### Domestic Logging

Logging timber for domestic uses has been a prevalent part of the Newfoundland lifestyle for many years. Timber has been utilized for home-building and heating, and for ship and wharf building purposes since the province's first settlers arrived. Logging for fuelwood use remains a common activity today. The following tables (4 through 20) summarize survey information on the domestic logging sector.

Table 4. Source of timber logged by type of land ownership

| Region | % Logged By Land Ownership | | | |
|---|---|---|---|---|
| | Crown Land | Private Land | Paper Co. Lands | Other |
| Avalon | 99.0 | 1.0 | 0.0 | 0.0 |
| Eastern | 91.7 | 4.0 | 2.7 | 1.5 |
| Central | 92.7 | 1.0 | 4.8 | 1.7 |
| Western | 83.4 | 5.9 | 10.2 | .5 |
| Island | 91.5 | 3.0 | 4.5 | 1.0 |

Table 5. Species harvested

| Region | Species Harvested (%) | | | |
|---|---|---|---|---|
| | Fir | Spruce | Birch | Other[1] |
| Avalon | 46.5 | 46.0 | 5.0 | 2.4 |
| Eastern | 35.7 | 47.7 | 15.2 | 1.5 |
| Central | 23.1 | 51.0 | 21.3 | 4.1 |
| Western | 49.0 | 25.5 | 25.4 | 0.0 |
| Island | 38.1 | 42.7 | 17.1 | 2.1 |

[1] Other includes larch, aspen, juniper, and miscellaneous minor species.

Table 6. End use of timber harvested

| Region | End Use (%) | | | |
|---|---|---|---|---|
| | Fuelwood | Sawtimber | Pulpwood | Other |
| Avalon | 91.3 | 7.0 | 0.0 | 1.7 |
| Eastern | 88.3 | 10.4 | 0.1 | 1.2 |
| Central | 89.5 | 7.4 | 2.5 | 0.6 |
| Western | 90.2 | 8.4 | 0.7 | 0.7 |
| Island | 89.8 | 8.3 | 0.9 | 1.0 |

Table 7. Timber production per logger

| Region | Production Statistics ($m^3$) | | |
|---|---|---|---|
| | Mean | Range | Std. Dev. |
| Avalon | 12.0 | 1.2-43.3 | 6.0 |
| Eastern | 16.8 | 4.8-48.1 | 8.7 |
| Central | 19.3 | 4.8-33.7 | 7.2 |
| Western | 20.0 | 2.4-48.1 | 10.4 |
| Island | 16.6 | 1.2-48.1 | 8.7 |

Table 8. Distance travelled to harvest timber

| Region | Distance travelled by % of cut | | | |
|---|---|---|---|---|
| | 1-32 Km | 33-64 Km | 65-97 Km | 98 Km or more |
| Avalon | 90 | 6 | 4 | 0 |
| Eastern | 93 | 7 | 0 | 0 |
| Central | 88 | 10 | 1 | 1 |
| Western | 89 | 10 | 0 | 1 |
| Island | 90 | 8 | 1 | 1 |

Table 9. Season of logging

| Region | Season of Harvest (%) | | | |
|---|---|---|---|---|
| | Winter | Spring | Summer | Fall |
| Avalon | 55.8 | 10.8 | 1.3 | 32.2 |
| Eastern | 44.4 | 12.7 | 0.1 | 42.7 |
| Central | 53.8 | 5.5 | 0.9 | 39.9 |
| Western | 65.0 | 9.5 | 1.3 | 24.2 |
| Island | 54.3 | 9.8 | 0.9 | 35.0 |

Table 10. Type of logging equipment most commonly utilized

| Region | Type of Equipment (%) by Region | | | | |
|---|---|---|---|---|---|
| | Chainsaw & truck | Chainsaw & snowmobile | Chainsaw & ATV | Chainsaw, skidder slasher | Other* |
| Avalon | 46 | 22 | 21 | 0 | 11 |
| Eastern | 41 | 36 | 17 | 0 | 6 |
| Central | 46 | 38 | 6 | 1 | 9 |
| Western | 43 | 45 | 5 | 2 | 5 |
| Island | 44 | 35 | 12 | 1 | 8 |

* Other: Includes: chainsaw, horse and sled
chainsaw and boat
chainsaw and tractor
bucksaw and axe

Table 11. Replacement cost of equipment

| Region | Replacement Cost of Equipment | | | | |
|---|---|---|---|---|---|
| | Less than $500 | $501 to $1 000 | $1001 to $3 000 | $3 001 to $5 000 | Greater than $5 000 |
| Avalon | 55 | 19 | 15 | 7 | 4 |
| Eastern | 52 | 18 | 12 | 9 | 9 |
| Central | 60 | 17 | 14 | 7 | 2 |
| Western | 51 | 15 | 14 | 11 | 9 |
| Island | 54 | 18 | 14 | 8 | 6 |

Table 12. Operating expenditure

| Region | Operating Expenditure ($) | | |
|---|---|---|---|
| | Mean | Range | Std. Dev. |
| Avalon | 206.19 | 1-999.00 | 191.39 |
| Eastern | 221.26 | 1-800.00 | 185.62 |
| Central | 190.50 | 1-800.00 | 156.62 |
| Western | 285.61 | 2-800.00 | 192.47 |
| All Island | 222.65 | 1-999.00 | 185.16 |

Table 13. Operating expenditures made locally

| Region | Annual Operating Expenditure ($) | Local Expenditure 1-32 Km ($) | Expenditure Spent Locally (%) |
|---|---|---|---|
| Avalon | 206.19 | 185.60 | 90 |
| Eastern | 221.26 | 205.77 | 93 |
| Central | 190.50 | 167.20 | 88 |
| Western | 285.61 | 254.19 | 89 |
| Island | 222.65 | 200.40 | 9 |

Table 14. Timber production per day

| Region | Production Statistics ($m^3$) | | |
|---|---|---|---|
| | Mean | Range | Std. Dev. |
| Avalon | 3.1 | 1.2-7.2 | 1.7 |
| Eastern | 3.8 | 0.7-9.6 | 2.2 |
| Central | 4.8 | 1.2-10.8 | 2.4 |
| Western | 4.5 | 1.2-12.0 | 1.9 |
| Island | 4.1 | 0.7-12.0 | 2.2 |

Table 15. Labour input

| Region | $\bar{x}$ No. of Harvesting Days | $\bar{x}$ Length of Harvesting Days (hours) | $\bar{x}$ No. of 8 hr. Days Spent Harvesting |
|---|---|---|---|
| Avalon | 17.5 | 5.0 | 10.9 |
| Eastern | 23.0 | 5.6 | 16.1 |
| Central | 20.2 | 5.8 | 14.6 |
| Western | 16.9 | 6.1 | 12.9 |
| Island | 19.4 | 5.6 | 13.6 |

Table 16. Loggers utilizing help and number of unpaid assistants

| Region | Percent with Assistance | Average number of Assistants |
|---|---|---|
| Avalon | 36 | 1.3 |
| Eastern | 32 | 1.1 |
| Central | 36 | 1.3 |
| Western | 39 | 1.7 |
| Island | 35 | 1.4 |

Table 17. Income derived from logging*

| | Incremental Values (%) | | | | |
|---|---|---|---|---|---|
| Region | Less than $500 | $501 to $1 000 | $1 001 to $3 000 | $3 001 to $5 000 | Greater than $5 000 |
| Avalon | 42 | 33 | 22 | 3 | 0 |
| Eastern | 23 | 41 | 30 | 2 | 4 |
| Central | 25 | 37 | 30 | 6 | 2 |
| Western | 18 | 43 | 35 | 3 | 1 |
| Island | 28 | 38 | 29 | 3 | 2 |

* Includes income and savings derived from burning fuelwood in lieu of oil, electricity, etc.

Table 18. Most common sources of alternate income for domestic loggers

| | Alternate Sources of Income (%) | | | | |
|---|---|---|---|---|---|
| Region | Fisheries | Construction | Welfare or Unemploy. Insurance | Other Forestry | Other |
| Avalon | 15.3 | 20.8 | 6.4 | 0.04 | 57.0 |
| Eastern | 22.2 | 18.2 | 13.6 | 0.0 | 46.0 |
| Central | 9.8 | 9.2 | 15.6 | 10.9 | 54.5 |
| Western | 27.8 | 11.4 | 10.1 | 5.7 | 45.0 |
| Island | 18.4 | 15.5 | 11.1 | 3.8 | 51.2 |

Table 19. Perceptions of wood supply

| Region | No Wood Shortage (%) | Wood Shortage (%) |
|---|---|---|
| Avalon | 67.0 | 33.0 |
| Eastern | 70.7 | 29.3 |
| Central | 78.2 | 21.8 |
| Western | 75.9 | 24.1 |
| Island | 72.3 | 27.7 |

Table 20. Logging plans for 1986

| | Increase Production | Keep Production at Same Level | Decrease Production |
|---|---|---|---|
| | - - - - - - -% of Respondents - - - - - - - | | |
| Avalon | 10.2 | 77.1 | 12.7 |
| Eastern | 1.0 | 89.9 | 9.1 |
| Central | 3.4 | 89.7 | 6.9 |
| Western | 5.1 | 82.3 | 12.6 |
| Island | 5.2 | 84.3 | 10.5 |

**Major concerns**

Domestic timber users who completed the questionnaire were asked about their major concerns regarding logging and the forest industry. While a number of issues arose in response to this question, some concerns were more prevalent than others.

In the Avalon region 33 percent of the respondents cited waste and overcutting as the most serious problem in logging. Another 30 percent indicated concern because of a lack of good quality wood. A related concern of too many licenses issued in one area was raised by 14 percent of the respondents, and 12 percent felt that there was inadequate road access to logging areas.

The Eastern region respondents (43 percent) felt the most serious concern was a lack of good quality wood. Waste and overcutting was noted by 33 percent as the next most serious problem. Another 8 percent felt that there were too many people cutting without a permit and selling wood commercially on a domestic permit. Too many licenses issued in concentrated areas was cited as a concern by 5 percent of the respondents.

In the central region the major concern noted by 29 percent of the respondents was waste and overcutting. Another 15 percent felt there were too many licenses issued in concentrated areas, 14 percent felt there was a lack of good quality wood, and 11 percent felt that commercial loggers were taking wood that should be reserved for domestic use.

In the western region 25 percent noted waste and overcutting and an equal percentage noted lack of good quality wood as the two major concerns. Wood supply problems were noted by 12 percent, and 7 percent felt that there were too many licenses issued in concentrated areas.

**Commercial Logging**

Logging provides raw material for the pulp and paper industry, sawmill industry, commercial fuelwood enterprises, and other miscellaneous users, and provides a source of employment for many Newfoundlanders. In order to gain insight into the logging industry and those who participate in it professionally, commercial wood loggers were asked to respond to the same questionnaire that domestic wood loggers had responded to, and were asked some additional questions more germane to a commercial operator. The following tables (21 through 34) present survey results for the commericial logging sector.

Table 21. Source of timber logged by type of land ownership

| | % Of Harvest By Land Ownership | | | |
|---|---|---|---|---|
| Region | Private Land | Crown Land | Pulp & Paper Company Limits | Other |
| Avalon | 32.4 | 67.6 | 0.0 | 0.0 |
| Eastern | 3.2 | 95.2 | 0.0 | 1.4 |
| Central | 0.0 | 9.0 | 91.0 | 0.0 |
| Western | 0.6 | 22.5 | 70.8 | 6.1 |
| Total | 0.7 | 19.0 | 76.7 | 3.6 |

Table 22. Species harvested

| | Species Harvested (%) | | | |
|---|---|---|---|---|
| Region | Fir | Spruce | Birch | Aspen |
| Avalon | 46.7 | 51.0 | 2.3 | 0.0 |
| Eastern | 45.4 | 46.8 | 7.8 | 0.0 |
| Central | 40.7 | 59.3 | 0.0 | 0.0 |
| Western | 27.4 | 71.0 | 1.3 | 0.0 |
| Island | 32.9 | 65.9 | 1.0 | 0.2 |

Table 23. End use of timber harvested

| | End Use (%) | | | |
|---|---|---|---|---|
| | Fuelwood | Sawtimber | Pulpwood | Other |
| Avalon | 63.9 | 35.4 | 0.0 | 0.7 |
| Eastern | 12.4 | 66.0 | 21.6 | 0.1 |
| Central | 0.3 | 7.2 | 92.5 | 0.0 |
| Western | 2.0 | 2.4 | 95.6 | 0.0 |
| Island | 1.9 | 5.7 | 92.4 | 0.0 |

Table 24. Timber production per logger

| Region | Production Statistics ($m^3$) | | |
|---|---|---|---|
| | Mean | Range | Std. Dev. |
| Avalon | 462.7 | 24.1 - 1 637 | 594.6 |
| Eastern | 1 078.8 | 7.2 - 12 035 | 2 610.4 |
| Central | 16 375.0 | 16.4 - 72 210 | 26 832.0 |
| Western | 15 383.0 | 12.0 - 107 779 | 26 907.0 |
| Island | 8 324.9 | 7.2 - 107 779 | 19 100.0 |

Table 25. Distance travelled to harvest timber

| Region | % of Cut by Distance | | | |
|---|---|---|---|---|
| | 1-32 Km | 33-64 Km | 65-97 Km | 98 Km or more |
| Avalon | 79 | 21 | 0 | 0 |
| Eastern | 75 | 8 | 8 | 10 |
| Central | 53 | 29 | 13 | 5 |
| Western | 22 | 41 | 14 | 23 |
| Island | 57 | 25 | 9 | 9 |

Table 26. Type of logging equipment most commonly utilized

| | Equipment Use By Region (%) | | | | |
|---|---|---|---|---|---|
| | Avalon | Eastern | Central | Western | Island |
| Chainsaw & Truck | 36 | 35 | 27 | 34 | 33 |
| Chainsaw & Snowmobile | 14 | 27 | 19 | 13 | 17 |
| Chainsaw & A.T.V. | 9 | 17 | 14 | 11 | 13 |
| Chainsaw, skidder, Slasher | 14 | 7 | 16 | 23 | 15 |
| Chainsaw, forwarder | 0 | 3 | 16 | 15 | 10 |
| fellerbuncher, skidder | 0 | 0 | 3 | 0 | 1 |
| Other | 27 | 12 | 6 | 4 | 11 |

Table 27. Replacement cost of equipment

| Region | Less than $1 000 | $1 000 to $5 000 | $5 001 to $10 000 | Greater than $10 000 |
|---|---|---|---|---|
| | - - - - - % Of Respondents - - - - - | | | |
| Avalon | 20 | 40 | 10 | 30 |
| Eastern | 20 | 43 | 23 | 13 |
| Central | 17 | 8 | 8 | 67 |
| Western | 11 | 17 | 11 | 61 |
| Island | 17 | 27 | 13 | 43 |

Table 28. Timber production per day

| | Production Statistics ($m^3$) | | |
|---|---|---|---|
| Region | Mean | Range | Std. Dev. |
| Avalon | 11.2 | 2.4- 28.9 | 7.4 |
| Eastern | 18.5 | 2.4- 120.4 | 35.1 |
| Western | 148.2 | 2.4- 722.1 | 197.2 |
| Central | 148.8 | 0.8- 886.4 | 262.3 |
| Island | 81.7 | 0.8- 886.4 | |

Table 29. Labour input

| Region | $\bar{x}$ No. of Harvesting Days | $\bar{x}$ Length of Harvesting Days (Hours) | $\bar{x}$ No. of 8 Hr. Days Spent Harvesting |
|---|---|---|---|
| Avalon | 128.5 | 9.4 | 151 |
| Eastern | 109.1 | 8.9 | 121 |
| Central | 97.5 | 8.0 | 98 |
| Western | 122.5 | 8.9 | 136 |
| Island | 114.4 | 8.8 | 127 |

Table 30. Loggers employing paid and unpaid help

| Region | Paid (%) | Unpaid (%) |
|---|---|---|
| Avalon | 60 | 40 |
| Eastern | 60 | 40 |
| Central | 75 | 25 |
| Western | 72 | 28 |
| Island | 67 | 33 |

Table 31. Labour force and wages

| Region | Total Person Years | Total Payroll ($) | Average Wage per Person Year ($) |
|---|---|---|---|
| Avalon | 6.5 | 59 857 | 9 208.77 |
| Eastern | 75.7 | 281 771 | 3 722.20 |
| Central | 89.8 | 2 593 042 | 28 875.75 |
| Western | 266.3 | 5 946 259 | 22 329.17 |
| Island | 438.4 | 8 880 929 | 20 257.59 |

Table 32. Estimated personal income from logging

| Region | $1 000 to $9 999 | $10 000 to $19 999 | $20 000 to $29 999 | $30 000 to $39 999 | $40 000 or $Greater |
|---|---|---|---|---|---|
| | - - - - - - - - -% of Respondents - - - - - - - - - | | | | |
| Avalon | 80 | 20 | 0 | 0 | 0 |
| Eastern | 81 | 19 | 0 | 0 | 0 |
| Central | 45 | 9 | 18 | 0 | 27 |
| Western | 56 | 11 | 22 | 0 | 11 |
| Island | 65 | 15 | 10 | 0 | 10 |

Table 33. Most common sources of alternate income for commercial loggers

| | Alternate Sources Of Income (%) | | | | | |
|---|---|---|---|---|---|---|
| Region | Fisheries | Construction | No other Income | Welfare or Unemployment Insurance | Other Forestry | Other |
| Avalon | 10 | 20 | 30 | 20 | 10 | 10 |
| Eastern | 13 | 22 | 27 | 10 | 17 | 11 |
| Central | 8 | 0 | 58 | 0 | 17 | 17 |
| Western | 38 | 19 | 12 | 6 | 25 | 0 |
| Island | 17 | 15 | 32 | 9 | 17 | 19 |

Table 34. Logging plans for 1986

| Region | Increase Production | Keep Production at Same Level | Decrease Production | Discontinue Logging |
|---|---|---|---|---|
| | - - - - - - - - - - - - | % of Respondents | - - - - - - - - - - - - | |
| Avalon | 78 | 22 | 0 | 0 |
| Eastern | 37 | 47 | 13 | 3 |
| Central | 42 | 58 | 0 | 0 |
| Western | 33 | 50 | 11 | 6 |
| Island | 48 | 44 | 6 | 2 |

**Major concerns**

In an identical question to that asked of domestic loggers, commercial loggers were asked to identify what they perceived to be the major concerns within the logging and forest industry.

In the Avalon region, 35 percent felt that there were too many licenses issued in one area, and 20 percent felt that there was a lack of good quality wood. Another 20 percent were concerned that there were illegal sales of wood by holders of domestic logging permits, and 15 percent felt that domestic logging was interfering with commercial operations.

In the eastern region 30 percent identified a lack of good quality wood as their major concern. Another 16 percent noted that illegal commercial sales of wood by those holding domestic permits was occurring. Insufficient road access to timber was noted by 12 percent of the respondents, and 9 percent felt that there was too much timber tied up by the pulp and paper companies.

In the central region, 27 percent felt that there were too many licenses issued in concentrated areas, while 18 percent indicated that there were too many people cutting timber who did not hold permits. Another 18 percent of respondents indicated that they were unable to cut timber where they would like to because of tenure held by the pulp and paper companies. A lack of markets was identified as a concern by 15 percent of the respondents.

In the western region concerns were similar to those expressed in other regions. Of the respondents, 30 percent felt that there was a lack of good quality wood. Another 28 percent felt there was poor management of forests, and 14 percent noted illegal cutting and selling by holders of domestic cutting permits. Too many licenses issued in one area was a concern of 11 percent of the respondents.

## SUMMARY AND CONCLUSION

The forest industry plays an important social and economic role in Newfoundland and the logging sector is an essential component of that industry.

This report has provided a regional perspective of the domestic and commercial logging sectors on the island of Newfoundland. The domestic logging sector was shown to be small scale, characterized by low levels of capital input, and benefits were valued at less than $3 000 per logger for 1985. Domestic logging is a common activity in rural Newfoundland with important social impacts, but of relatively minor consequence in terms of income and employment.

Commercial logging is carried out on a much larger scale with greater capital input and operating expenditures. The industry provides primary employment and substantial wages for many individuals, especially in regions where logging supplies the pulpmills.

The comments expressed by those who responded to the questionnaire reflect an appreciation for the forest resource and a concern for the logging industry. Those comments and the data that have been presented can provide useful information for future management of the resource.

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